

SECTION 02510

ASPHALTIC CONCRETE PAVEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface courses of compacted mixture of coarse and fine aggregates and asphaltic material.

1.02 UNIT PRICES

- A. Measurement for asphaltic concrete pavement is on square yard basis. Separate measurement will be made for each different required thickness of pavement.
- B. Payment for asphaltic concrete pavement includes payment for associated work performed in accordance with Section 02512.
- C. Refer to paragraph 3.08 for unit price adjustments.

1.03 SUBMITTALS

- A. Submittals shall conform to requirements of all sections and provisions of these specifications.
- B. Submit certificates that asphaltic materials and aggregates meet requirements of Article 2.01, Materials, of this Specification Section.
- C. Submit proposed design mix and test data for each type and strength of surface course in Work.
- D. Submit manufacturer's description and characteristics of mixing plant for approval.
- E. Submit manufacturer's description and characteristics of spreading and finishing machine for approval.
- F. Submit batch plant tickets for each truck load delivery of hot mix asphalt. Tickets should be delivered to Owner's Representative.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Coarse Aggregate: Gravel or crushed stone, or combination thereof, that is retained on No. 10 sieve, uniform in quality throughout and free from dirt, organic or other

injurious matter occurring either free or as coating on aggregate. Aggregate shall conform to ASTM C33 except for gradation. Furnish rock or gravel with Los Angeles abrasion loss not to exceed 40 percent by weight when tested in accordance with ASTM C131.

- B. Fine Aggregate: Sand or stone screenings or combination of both passing No. 10 sieve. Aggregate shall conform to ASTM C33 except for gradation. Use sand composed of sound, durable stone particles free from loams or other injurious foreign matter. Furnish screenings of same or similar material as specified for coarse aggregate. Plasticity index of that part of fine aggregate passing No. 40 sieve shall be not more than 6 when tested by Tex-106-E. Sand equivalent shall have a minimum value of 45 when tested by Tex-203-F.
- C. Composite Aggregate: Conform to the grading limits of TxDOT Item 340 for the paving type indicated on the drawings.
- D. Asphaltic Material: Moisture-free homogeneous material which will not foam when heated to 347 degrees F, meeting following requirements:

VISCOSITY GRADE

<u>Test</u>	AC-10		AC-20	
	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>
Viscosity, 140E strokes	1000	±200	2000	±400
Viscosity, 275E strokes	1.9	-	2.5	-
Penetration, 77E, 100 g, 5 sec.	85	-	55	-
Flash Point, C.O.C., F.	450	-	450	-
Solubility in trichloroethkene	99.0	-	99.0	-
Tests on residues from thin film oven tests:				
Viscosity, 140E strokes	-	3000	-	6000
Ductility, 77E, 5 cms per min., cms	70	-	50	-
Spot tests	Negative for all grades			

1. Material shall not be cracked
2. The Owner Representative will designate grade of asphalt to use after design tests have been made. Use only one grade of asphalt after grade is determined by test design for the project.

2.02 EQUIPMENT

- A. Mixing Plant: Weight-batching or drum mix plant with capacity for producing continuously mixtures meeting specifications. Plant shall have satisfactory conveyors, power units, aggregate handling equipment, hot aggregate screens and bins, and dust collectors. Provide equipment to supply materials adequately in accordance with rated capacity of plant and produce finished material within specified tolerances. Following equipment is essential:
 - 1. Cold aggregate bins and proportioning device.
 - 2. Dryer.
 - 3. Screens.
 - 4. Aggregate weight box and batching scales.
 - 5. Mixer.
 - 6. Asphalt storage and heating devices.
 - 7. Asphalt measuring devices.
 - 8. Truck scales.
- B. Bins: Separate aggregate into minimum of four bins to produce consistently uniform grading and asphalt content in completed mix.

2.03 MIXES

- A. Employ and pay certified testing laboratory to prepare design mixes. Test in accordance with Tex-126-E or Tex-204-F and Tex-208-F.
- B. Density and Stability Requirements:

Percent Density		Percent	HVEEM Stability Percent
<u>Min.</u>	<u>Max.</u>	<u>Optimum</u>	<u>Not Less Than</u>
95	99	97	35

- C. Proportions for Asphaltic Material: As specified in TxDOT Item 340 for the paving type shown on the Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted base course is ready to support imposed loads.
- B. Verify lines and grades are correct.

3.02 PREPARATION

- A. Prime Coat: If indicated on the Drawings, apply a prime coat conforming to requirements of Section 02511. Do not apply a tack coat until primed base has cured to satisfaction of the Owner's Representative.
- B. Tack Coat: Conform to requirements of Section 02512.
- C. Do not use cutback asphalt during the period of April 16 to September 15 unless approved by the Owner Representative.

3.03 PLACEMENT

- A. Place asphaltic mixture when the roadway surface temperature is 60 degrees F or higher. Measure the roadway surface temperature with a handheld infrared thermometer. Unless otherwise shown on the plans, place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable in the opinion of the Owner Representative.
- B. Haul prepared and heated asphaltic concrete mixture to the project in tight vehicles previously cleaned of foreign material. Mixture shall be at temperature between 250 degrees F and 325 degrees F when laid.
- C. Spread material into place with approved mechanical spreading and finishing machine of screening or tamping type.
- D. Surface Course Material: Surface course 2 inches or less in thickness may be spread in one lift. Spread all lifts in such manner that, when compacted, finished course will be smooth, of uniform density, and will be to section, line and grade as shown. Coincide construction joints on surface courses with lane lines, or as directed by the Owner's Representative.
- E. Place courses as nearly continuously as possible. Pass roller over unprotected ends of freshly laid mixture only when mixture has cooled. When work is resumed, cut back

laid material to produce slightly beveled edge for full thickness of course. Remove old material which has been cut away and lay new mix against fresh cut.

- F. When new asphalt is laid against existing or old asphalt, existing or old asphalt shall be saw cut full depth to provide straight smooth joint.
- G. In restricted areas where use of paver is impractical, spread and finish asphalt by mechanical compactor. Use wood or steel forms, rigidly supported to assure correct grade and cross section. Carefully place materials to avoid segregation of mix. Do not broadcast material. Remove any lumps that do not break down readily. Place asphalt courses in same sequence as if placed by machine.

3.04 COMPACTION

- A. Begin rolling while pavement is still hot and as soon as it will bear roller without undue displacement or hairline cracking. Keep wheels properly moistened with water to prevent adhesion of surface mixture. Do not use excessive water.
- B. Compress surface thoroughly and uniformly, first with power-driven, 3-wheel, or tandem rollers weighing from 8 to 10 tons. Obtain subsequent compression by starting at side and rolling longitudinally toward center of pavement, overlapping on successive trips by at least one-half width of rear wheels. Make alternate trips slightly different in length. Continue rolling until no further compression can be obtained and all rolling marks are eliminated. Complete all rolling before mixture temperature drops below 175 degrees F.
- C. Use tandem roller for final rolling. Double coverage with approved pneumatic roller on asphaltic concrete surface is acceptable after flat wheel and tandem rolling has been completed.
- D. Along walls, curbs, headers and similar structures, and in all locations not accessible to rollers, compact mixture thoroughly with lightly oiled tamps.
- E. Compact binder course and surface course to density not less than 93 percent of the maximum possible density of voidless mixture composed of same materials in like proportions.

3.05 TOLERANCES

- A. Furnish templates for checking surface in finished sections. Maximum deflection of templates, when supported at center, shall not exceed 1/8 inch.
- B. Completed surface, when tested with 10-foot straightedge laid parallel to center line of pavement, shall show no deviation in excess of 1/8 inch in 10 feet. Correct any surface not meeting this requirement.

3.06 FIELD QUALITY CONTROL

- A. Testing will be performed under provisions of Section 01410 - Testing Laboratory Services.
- B. Minimum of one core will be taken at random locations per 1,000 feet per lane of roadway or 1,000 square yards of asphalt concrete pavement to determine in-place depth and density.
- C. In-place density will be determined in accordance with Tex-207-F and Tex-227-F from cores or sections of asphaltic base located near each core. Other methods of determining in-place density, which correlate satisfactorily with results obtained from roadway specimens, may be used when approved by the Owner's Representative.
- D. Contractor may, at his own expense, request three additional cores in vicinity of cores indicating nonconforming in-place depths. In-place depth at these locations shall be average depth of four cores.
- E. Fill cores and density test sections with new compacted asphaltic concrete pavement.

3.07 NONCONFORMING PAVEMENT

- A. Recompact pavement sections not meeting specified densities or replace them with new asphaltic concrete material. Replace with new material sections of surface course pavement not meeting surface test requirements or having unacceptable surface texture. Patch asphalt pavement sections in accordance with procedures established by Asphalt Institute.
- B. Remove and replace areas of asphaltic concrete pavement found deficient in thickness by more than 10 percent. Use new asphaltic concrete pavement of thickness shown on Drawings.
- C. Nonconforming pavement sections shall be replaced at no cost to Owner.

3.08 UNIT PRICE ADJUSTMENT

- A. Unit price adjustments shall be made for in-place depth determined by cores as follows:
 - 1. Adjusted Unit Price shall be ratio of average thickness as determined by cores to thickness bid upon, times unit price bid.
 - 2. Adjustment shall apply to lower limit of 90 percent and upper limit of 100 percent of unit price bid.

3. Average depth below 90 percent may be rejected by the Owner's Representative.

3.09 PROTECTION

- A. Do not open pavement to traffic until 12 hours after completion of rolling, or as shown on Drawings.
- B. Maintain asphaltic concrete pavement in good condition until completion of Work.
- C. Repair defects immediately by replacing asphaltic concrete pavement to full depth.

END OF SECTION